# TOTALVIEW INSTALLATION GUIDE



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This document provides information about installing the TotalView® multiprocess debugger.

See the TotalView Release Notes for complete information about supported operating systems.

### Reporting Problems

Please contact us if you have problems installing TotalView, questions that are not answered in the product documentation or on our Web site, or suggestions for new features or improvements.

**support@etnus.com** 1-800-856-3766 in the United States (+1) 508-652-7700 worldwide

### Step 1: Unbundling Downloaded Files

Use the **tar** command to extract the TotalView files that you downloaded from our web site. For example:

```
tar xvf totalview-version-platform.tar tar xvf totalview-version-doc.tar
```

### Step 2: Running the Install Program



Before you can run TotalView, you will need to obtain a demo licence. You can obtain one by filling in the form located at www.etnus.com.

This section describes how you install a new version of TotalView. Before starting, you should read the *TotalView Release Notes* and the **README.TXT** file that came with the software that you downloaded. These files contain

information that you may need to use for your version of TotalView. In addition, some systems may need to be patched. For more information, see the TotalView Platforms document.

Here is the procedure for installing TotalView:

1 (Optional) Become the root user on the system where you will install TotalView:

#### su root

We recommend that you become the **root** user when installing TotalView as this prevents users from modifying the software after you install it. However, you should not run TotalView as **root**.

**2** From the directory containing the unbundled files, start the **Install** program as follows:

#### ./Install

For information on using this command, type ./Install -help. If you use any of the options described in this displayed information, TotalView is non-interactively installed.

The **Install** program asks that you name an installation directory. If the directory you specify does not exist, the **Install** program creates it. If you do not enter a name, the installation directory will either be **/usr/** 

toolworks or /opt/toolworks—this is system-dependent. Type a period "." if you want Install to place TotalView in your current directory.

This manual refers to the installation directory's pathname as *installdir*. The **Install** program then creates a **toolworks** directory and places two subdirectories within it:

- ➤ totalview.version. This is where Install places TotalView.
- ➤ flexIm-9.2-1: This is where Install places TotalView the license manager.
- **3** You are then asked some questions asking which components you wish to install. The first two relate to the TotalView executable; the middle two relate to the license manager; and the final two relate to the documentation.

If you have not yet installed Release 6 on your system, you should answer yes to the first set of questions. While you do not have to install the documentation named by the last two questions, you should install it.

If you are adding to an existing installation, you can skip portions of this installation to save space. For example, one TotalView component and one license manager component contain *common* components. If you are reinstalling TotalView, you can ignore these components. For example, if you have previously installed the documentation, you do not have to reinstall it.

**4** The **Install** program asks if it should create a symbolic link (named **totalview**) to your installation directory.

If you are not the root user, **Install** cannot create the link, so you should answer "n" (no). If **Install** can not create the link, you can ignore its complaints and continue installing TotalView by pressing Enter.

**5** After **Install** concludes, become non-root, type:

exit

**6** Test the installation by starting TotalView:

installdir/toolworks/totalview.version/bin/totalview

TotalView prints information that includes a version number and a message indicating that a license file is not installed.

If TotalView cannot initialize the license manager, it prints the following message:

Unable to initialize TotalView license

If this occurs, you should confirm that you have installed the license and that you have initialized the **LM\_LICENSE\_FILE** environment variable correctly.

### Step 3: Installing a Demo License

Before you can use TotalView, you must place the demo license into the flexlm-9.2-1 directory. This license file was attached to the email message confirming your download request. The attachment is called license.demo.

- 1 If you installed TotalView as the **root** user, become the **root** user again.
- 2 Copy the license file to the flexIm-9.2-1 directory.
  cp license.demo installdir/toolworks/flexlm-9.2-1
- 3 To test that TotalView can use the license file, type:

  installdir/toolworks/totalview/platform/bin/totalview

  TotalView responds by displaying its Root window.



After you purchase TotalView, you will receive a file containing a permanent license that you will place into this same directory. The filename of the permanent license file is "license.dat". See Chapter 3, "Installing TotalView License Keys," on page 11 for more information.

### Setting the License File Variable

The **totalview** startup looks in the FLEXIm directories for the **license.demo** and **license.dat** files. If you do not want to install the **license.demo** file in this directory, you must set the **LM\_LICENSE\_FILE** environment variable to the file's full pathname. For example:

setenv LM LICENSE FILE nonstandard-dir/license.demo

If a LM\_LICENSE\_FILE environment variable already exists, add the pathname for license.demo. Notice that the LM\_LICENSE\_FILE variable contains a colon-separated list of license file pathnames. For example:

### **Step 4: Configuring Your Environment**

Before you can begin using TotalView, you must add directories to your system's environment variables. On some systems, you may need to mount the /proc directory.

#### Setting Environment Variables

The pathnames listed in the following table assume that:

- You installed the software as the **root** user.
- /usr/toolworks is the default installation directory.
- The Install program created the a symbolic link to this directory (refer to "Step 2: Running the Install Program" on page 1 for details).

If you did not install TotalView as the **root** user, or if the **Install** program did not create the **/opt/totalview** or **/usr/totalview** links, you must add the following pathnames to your environment variables. In these variables, directories are separated by colon characters (:).

Environment Variable	Path name
PATH	installdir/toolworks/totalview-version/bin
LM_LICENSE_FILE	nonstandard-dir/license.demo

### Mounting the /proc Directory

On some systems, you must mount the /proc directory if it is not currently mounted. If you use any of the following systems, determine if the /proc directory is mounted:

- Compaq UNIX
- SunOS 5.x
- IRIX

You can check if this directory is mounted by typing:

#### ls /proc

If it is mounted, the **Is** command prints a list of numbers. If you see an error message, or no message at all, the **/proc** directory is probably not mounted. Your system administrator can mount the **/proc** directory.

### Installing or Changing a Regular License



This chapter describes the procedure fxsor installing or changing a regular license.

- To install TotalView software for the first time with a permanent license, begin with the next section.
- To update an existing license, see "Ordering a Regular License" on page 6.
- To install TotalView software and use an existing license, see "Accessing a License Server" on page 7.
- To shutdown and restart the license manager, see "Starting the License Manager Manually" on page 8.

### Planning for a Regular License

This section describes what you must do when your demo license expires, or when you need to change your current regular license. TotalView uses the FLEXIm® license management software to grant or reject requests to use TotalView.



You do not need to install FLEXIm if you are using a demo license. In other words, you only need the information in this chapter after you purchase TotalView and have received your regular license from us.

Your regular TotalView license is associated with a FLEXIm license manager host (the license server) and is for a specific number of floating, concurrent user licenses.

Etnus provides HTML documentation and tools for using FLEX*lm*. Standalone versions of the FLEX*lm* license manager are also available. For more information, see "Choosing a Standalone FLEX*lm* Version" on page 9.

#### Choosing a License Server

You will need to install the FLEXIm license server the first time you install a regular license. In most cases, the license manager and TotalView reside on the same system. However, you can install them on different systems.

The license manager should reside on a machine that is reliable, always running, and a permanent part of your local network. And, most importantly, it is accessible. For example, it is not placed on the other side of your firewall.



If you already have a FLEXIm license manager in your network, we recommend that you do not include your TotalView license with the other licenses managed by that license manager. Instead, use the steps outlined in this chapter to configure a dedicated FLEXIm license manager for TotalView.

### Ordering a Regular License

To set up or change a regular installation, contact Etnus at 1-800-856-3766 in the United States or (+1) 508-652-7704 worldwide, or, you can email us at info@etnus.com. Please be ready to provide the following information:

- The platforms and operating systems upon which you will run TotalView.
- For each platform, the maximum number of processors upon which you will be running TotalView simultaneously. (This isn't the maximum number of processes in your program.)
- The maximum number of concurrent users.
- The toolworks\_hostid output from your FLEXIm license server. (See Finding a License Server Host ID for an example.)

FLEXIm uses a host ID to identify the computer running the license server.

### Finding a License Server Host ID

When you install TotalView, the files for the FLEXIm license manager are automatically installed in installdir/tooworks/flexIm-9.2-1.

To obtain host information, run the toolworks hostid script, as follows:

installdir/flexlm-9.2-1/bin/toolworks hostid



Do not use the UNIX **hostid** command.

This script writes the host name and the FLEXIm host ID value to standard output; for example:

The host name for this machine is: fast-server The host ID for this machine is: 08122b2cf32d

After you send us this information and your order is complete, we'll send you a permanent license key.

### Creating a FLEXIm User Account

While you can run the FLEX/m license manager as **root**, it is usually run as a unique non-privileged (that is, non-**root**) user. Do this by creating a non-privileged user account reserved for FLEX/m's use

The steps for creating a new user account vary with operating systems and site configurations. You may need to refer to your operating system's documentation or your site's operating procedures.

Note that this account must have the following properties:

- The password is set to '\*' because interactive access is not required.
- There is a unique user ID.
- There is a unique group ID.
- The login shell is /bin/sh.



The user name does not have to be **flexIm**. Any unique name will do.

### **Installing your Permanent License**

This procedure is described in Chapter 3, "Installing TotalView License Keys," on page 11.

### Accessing a License Server

When you start TotalView, it must be able to find the license.dat file in the flexIm-9.2-1 directory. If TotalView and the active license manager are all installed on the same host and you have already placed the license.dat file in the correct location, you can skip to "Starting the License Manager Manually" on page 8.

If TotalView and the license server are installed on different machines, you will need to have a **license.dat** file for each TotalView installation. You should copy the **license.client** file from the license server to **flexIm-9.2-1/license.dat** in each TotalView installation. If you will be using an existing license server, this is the only thing you need to do.

The format for this type of license.dat file (the license.client file) is:

```
SERVER host-name host-id port-number USE_SERVER
```

For example:

SERVER fast-server 08122b2cf32d 7127 USE SERVER

FLEXIm ignores all lines after USE\_SERVER.

### Starting the License Manager Manually\_

You can start or stop the license manager by using the **toolworks\_init** script. (This script is created by the **Configure\_License** script.) If the license manager software is installed in /usr/local/toolworks, the following commands start the license manager. Before entering these commands, use the su shell command to become the **root** user.

```
cd /usr/local/toolworks/flexlm-9.2-1
./bin/toolworks init start
```



Before running this program, make sure that you have write permission to this directory.

Although the start-up script should be run as super-user (**root**), the license manager is started using the FLEX*lm* user ID.

If the license manager starts successfully, the UNIX **ps** command shows that **Imgrd**, the primary license manager daemon, is running. Depending on how many shared licenses are currently in use, the **ps** command may show one or more instances of the **toolworks** license daemon.

### Stopping the License Manager

The procedure for manually stopping the license manager is similar to the process for starting it. If the license manager software is installed in /usr/local/toolworks, the following commands stop the license manager. Before entering these commands, use the su shell command to become the root user.

```
cd /usr/local/toolworks/flexlm-9.2-1
./bin/toolworks init stop
```

### Testing the License Manager

To verify that you installed the license manager correctly, you should manually start the license manager and then run TotalView as non-root. After the license manager starts, set the license file variable and test the license installation by typing:

```
installdir/toolworks/totalview/platform/bin/totalview
```

TotalView should respond by displaying its Root Window. If you experience problems, you may be able to figure out the problem by:

- Looking at the flexIm-9.2-1/license.log log file contains status and error messages from the Imgrd license server.
- Using the flexIm-9.2-1/platform/bin/Imstat command lists license manager activity. For example, to list the number of licenses that are currently checked out on a sun5 platform, type:

```
cd /usr/local/toolworks/flexlm-9.2-1
./sun5/bin/lmstat -a -c ./license.dat
```

# Starting the License Manager When the System Boots

If you want the license manager to start automatically when the license server boots, add the **toolworks\_init** command (see "Starting the License Manager Manually" on page 8) to the appropriate system start-up file. On most systems, you should automatically stop the license manager when the system shuts down to single-user mode.

You can edit your startup files by running the <code>Configure\_Autostart</code> shell script which must be run as <code>root</code>. For example, if the license manager software is in the <code>/usr/local/toolworks</code> directory, run <code>Configure\_Autostart</code> using the following commands. (Before entering these commands, use the <code>su</code> shell command to become the root user.)

cd /usr/local/toolworks/flexlm-9.2-1
./bin/Configure Autostart

**Configure\_Autostart** prompts you with some configuration questions and then makes its changes.

### Managing Your Licenses

You should not combine Etnus licenses with those of other third-party software managed by FLEXIm. If you must combine your working Etnus license manager with another, see the FLEXIm documentation for information.



The TCP/IP port number used for the Etnus license manager daemon must be unique and not in use elsewhere. Find port numbers used by other FLEXIm license managers in their license.dat files.

### Choosing a Standalone FLEXIm Version\_\_\_

Etnus supplies a stand-alone version of the version 9.2 FLEXIm license manager. The following table indicates the supported platforms and the tar file associated with each.

Distribution Name	FLEXIm license manager for
flexlm-9.2-1-alpha.tar	Compaq Tru64 UNIX
flexlm-9.2-1-linux-ia64.tar	HP Linux for Itanium, Red Hat IA-64 Linux 7.2 and 8.0
flexlm-9.2-1-linux-x86.tar	RedHat Linux
flexlm-9.2-1-irix6-mips.tar	IRIX
flexlm-9.2-1-rs6000.tar	RS/6000
flexlm-9.2-1-sun5.tar	SPARC SunOS

Use the **tar** command to extract the TotalView files that you downloaded from our web site. For example:

tar xvf flexlm-version-platform.tar

### Starting the Install Program

Here is the procedure for installing FLEXIm:

1 (Optional) Become the root user on the system where you will install TotalView:

#### su root

We recommend that you become the root user when installing FLEXIm as this prevents users from modifying the software after you install it.

**2** From the directory containing the unbundled files, start the **Install** program:

#### ./Install



For information on using this command, type "./Install -help". If you use any of the options described in this help, the software is non-interactively installed.

- 3 The Install program asks that you name an installation directory. If the directory you specify does not exist, the Install program creates it. The Install program then creates a toolworks directory and places the flexIm-9.2-1 directory within it. Type a period "." if you want Install to place FLEXIm 9.2 in your current directory.
  - If you do not enter a name, the installation directory will either be /usr/toolworks or /opt/toolworks—this is system dependent.
- **4** You are then asked which components you wish to install. You should answer *yes* to all questions.
- **5** If you became root to install FLEX*lm*, use the **exit** command.

### More FLEXIm Information

These instructions provide only basic information on installing the FLEXIm license manager. For more information, see:

man Pages The man pages for the FLEXIm license manager and its

support utilities are installed in flexlm-9.2-1/man.

User Guide An HTML version of the FLEXIm user manual is installed

in flexlm-9.2-1/doc/flexuser.

#### **Macrovision Web Site**

FLEXIm is a product of Macrovision Corporation. Their web site at http://www.macrovision.com/ contains additional information about FLEXIm as well as utilities that can help you mange your license server.

# Installing TotalView License Keys

This chapter describes the procedure for installing or changing a regular license. The topics in this chapter are:

- "Step 1: Installing the FLEXIm License Manager" on page 11
- "Step 2: Locating the flexlm-9.2-1 License Server Directory" on page 12
- "Step 3: Deleting Older License Keys" on page 12
- "Step 4: Adding New TotalView License Keys" on page 13
- "Step 5: Starting the License Server" on page 14
- "Step 6: Configuring TotalView to Use the License Server" on page 14
- "Reporting Problems with License Installation" on page 15

# Step 1: Installing the FLEXIm License Manager

You must install the FLEX*lm* version 9.2 license management software on the machine you have selected as your license server. FLEX*lm* is included in the TotalView distribution and installed by TotalView's installation script. You may download the latest version of TotalView from http://www.etnus.com/pub/totalview/.

If you would prefer to not install TotalView on the same machine as will be running the license server, you can download the FLEX*lm* software from http://www.etnus.com/pub/flexlm/v9.2-1/.

Read the **README** file included in each distribution for more information about installing TotalView and FLEXlm.

# Step 2: Locating the flexlm-9.2-1 License Server Directory

Locate the **flexim-9.2-1** directory on the license server that was installed in Step 1. This directory should be located in the directory *installdir*/toolworks. The default values for *installdir* are /usr and /opt depending on your platform.

Set the **FLEXLM** environment variable to:

installdir/toolworks/flexlm-9.2-1

For example:

setenv FLEXLM /usr/toolworks/flexlm-9.2-1



The **FLEXLM** environment variable is only required for this installation process. It is not required by the license management daemons.

### Step 3: Deleting Older License Keys \_\_\_\_

If you received new TotalView licenses keys because you have moved your server or you have traded in existing TotalView license keys, the older license keys are no longer valid and must be removed to be in compliance with the Etnus Permanent License Agreement.

If you do not need to remove previous TotalView license keys, skip to "Step 4: Adding New TotalView License Keys" on page 13.

The host information and license key information for the license keys that you need to remove are included in the email you received from us. For each of these license keys, that email listed:

- The **hostname** of the license server
- The **hostid** of the license server
- The FLEXIm INCREMENT lines that compose the invalid TotalView license key

Here is how to remove an invalid license key:

1 Locate the machine that corresponds with the **hostid** for the invalid key. Since hostnames are dynamic, you can use the **\${FLEXLM}/bin/toolworks hostid** script to validate the **hostid** of the license server.



The FLEXIm hostid is unique for each license server regardless of hostname and IP address changes.

- **2** Locate the *installdir*/toolworks/flexlm-9.2-1 directory on the license server.
- **3** If necessary, become the root user.
- **4** Make a temporary backup of the existing **\${FLEXLM}**/**license.dat** file. For example:

cp \${FLEXLM}/license.dat \${FLEXLM}/license.dat.bak

- **5** Using a text editor, edit the **\${FLEXLM}**/license.dat file to delete the **INCREMENT** lines and comment lines—comment lines begin with ##—matching the key being removed. Save this file.
- 6 If other license keys still exist in the license.dat file, tell the license server to reread the license.dat and verify that these licenses still work. If they do, you can delete the license.dat.bak temporary backup file.

Use the following command to force the license server to reread your license.dat file:

#### \${FLEXLM}/bin/toolworks lmreread

If no license keys remain in the **license.dat**, use the following command to stop the license server:

\${FLEXLM}/bin/toolworks init stop

# Step 4: Adding New TotalView License Keys

This step describes how to update and create the **license.dat** file used by the license manager to enable TotalView.

- If your license server is already serving one or more TotalView licenses (that is, the file \${FLEXLM}/license.dat already exists), go to "Revising Your license.dat File" on page 14.
- If the license server does not exist or you are using a demo license, continue with next section.

### Adding a New license.dat File

The Configure\_License script, which is located in the \${FLEXLM}/bin directory—creates the license.dat file and the toolworks\_init script. Configure\_License need to read the license.src file. This file, which you will create, contains TotalView license keys.

Here is the procedure for creating this license.src file:

- 1 Change to the flexlm-9.2-1 directory on the license server cd \${FLEXLM}
- 2 Copy and paste the new Etnus license keys—this is the information that you received through email—into a file named license.src in the flexIm-9.2-1 directory.

The text in your **license.src** will vary depending on your host information, number of license keys, and license configurations.

- **3** Run the **\${FLEXLM}/bin/Configure\_License** script on the license server. You must run this directory while your current directory is **flexIm-9.2-1** directory. The script creates the following files:
  - ➤ \${FLEXLM}/license.dat
  - ➤ \${FLEXLM}/license.opt
  - ➤ \${FLEXLM}/license.client
  - ➤ \${FLEXLM}/license.log
  - ➤ \${FLEXLM}/bin/toolworks init

Proceed to "Step 5: Starting the License Server" on page 14

### Revising Your license dat File

If you are currently using TotalView, you will need to revise your \${FLEXLM}/license.dat file. You do not need to create a new \${FLEXLM}/license.src and rerun the Configure\_License script unless you have deleted or changed the location of the flexIm-9.2-1 directory.

If the \${FLEXLM}/license.dat does not exist, you will need to follow the procedure described in "Adding a New license.dat File" on page 13. Since Etnus does not resupply all of your TotalView license keys when there is a license change, you will need to combine the TotalView license keys that you already have with the newly delivered keys.

Here is the procedure for revising your existing license.dat file:

- 1 Backup your existing \${FLEXLM}/license.dat file. For example,
  cp \${FLEXLM}/license.dat \${FLEXLM}/license.dat.bak
- 2 Using a text editor, edit the \${FLEXLM}/license.dat file and append the new TotalView license keys delivered in this email message to the end of the \${FLEXLM}/license.dat file.

### Step 5: Starting the License Server

Run the following command as **root** to start the license server. If you configured your license server to run as a non-privileged user, the initialization script will ensure that the license management daemons are started and run under the non-privileged user even if you run the script as root.

```
${FLEXLM}/bin/toolworks init start
```

To stop the license manager, use the following command as **root**.

```
${FLEXLM}/bin/toolworks_init stop
```

If you would like the license manager to automatically start each time the system is booted, run the following script as **root**:

\${FLEXLM}/bin/Configure Autostart

# Step 6: Configuring TotalView to Use the License Server

TotalView must be able to find the **\${FLEXLM}**/license.dat file. If you are running TotalView on the same machine as the license server, you can skip this step.

If TotalView and the license manager are not running on the same machine, you will need to have a \${FLEXLM}/license.dat file for each additional installation. Copy the \${FLEXLM}/license.client file from the license server into the flexlm-9.2-1 directory on each remote machine and rename the file to license.dat.

As an alternative, you can specify the full path to the **license.dat** file in your **LM\_LICENSE\_FILE** environment variable. A client-style **license.dat** has the following form:

SERVER hostname hostid port-number USE SERVER

# Reporting Problems with License Installation

If you have difficulties installing your TotalView license keys, please send email to license@etnus.com. Please include the following:

- Your license.dat file.
- Your license.src file (if applicable).
- The license delivery email.
- The license.log file that was created when you attempted to start the license manager and TotalView.
- The text displayed in your window when you tried to start the license manager.
- The text displayed in you window when you tried to start TotalView.

**Reporting Problems with License Installation**